

# Marlene and Stewart Greenebaum Cancer Center UMMC Board, Nov 19, 2015

**Kevin Cullen, MD**, Director, University of Maryland Greenebaum Cancer Center and  
Professor, University of Maryland School of Medicine



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# UMGCC – Who are we and why are we here?

The mission of the UMGCC is to undertake innovative basic and clinical research that will impact the understanding and treatment of cancer around the world and to provide state-of-the-art clinical care to cancer patients in Maryland and beyond

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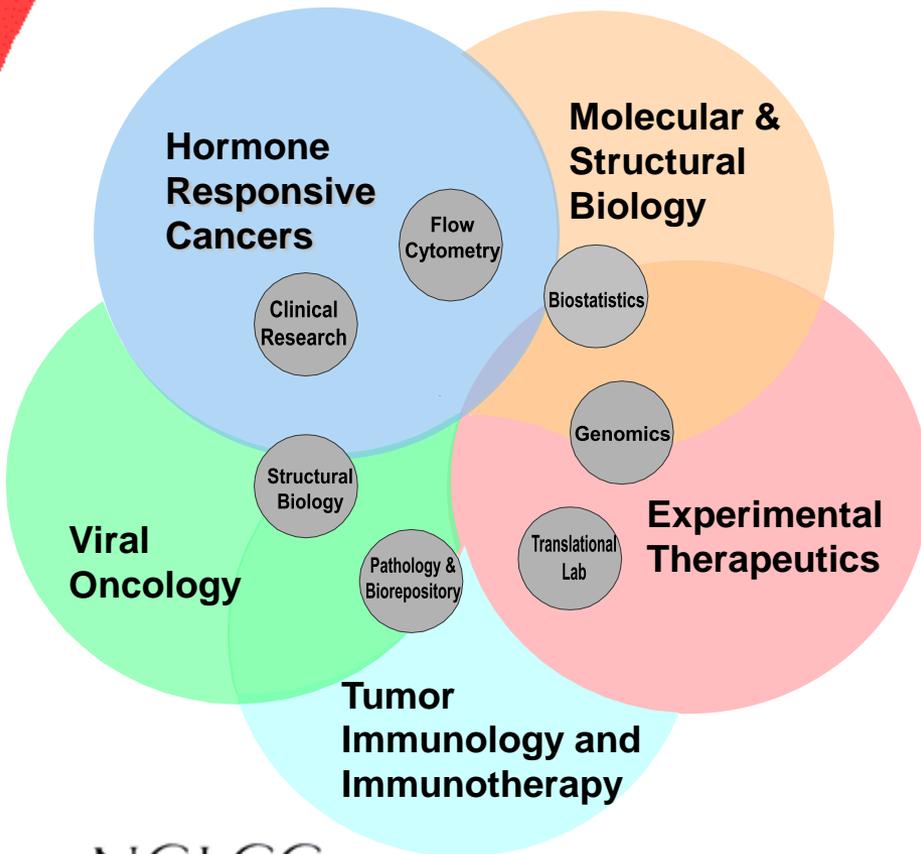
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# UMGCC at a Glance (2015)

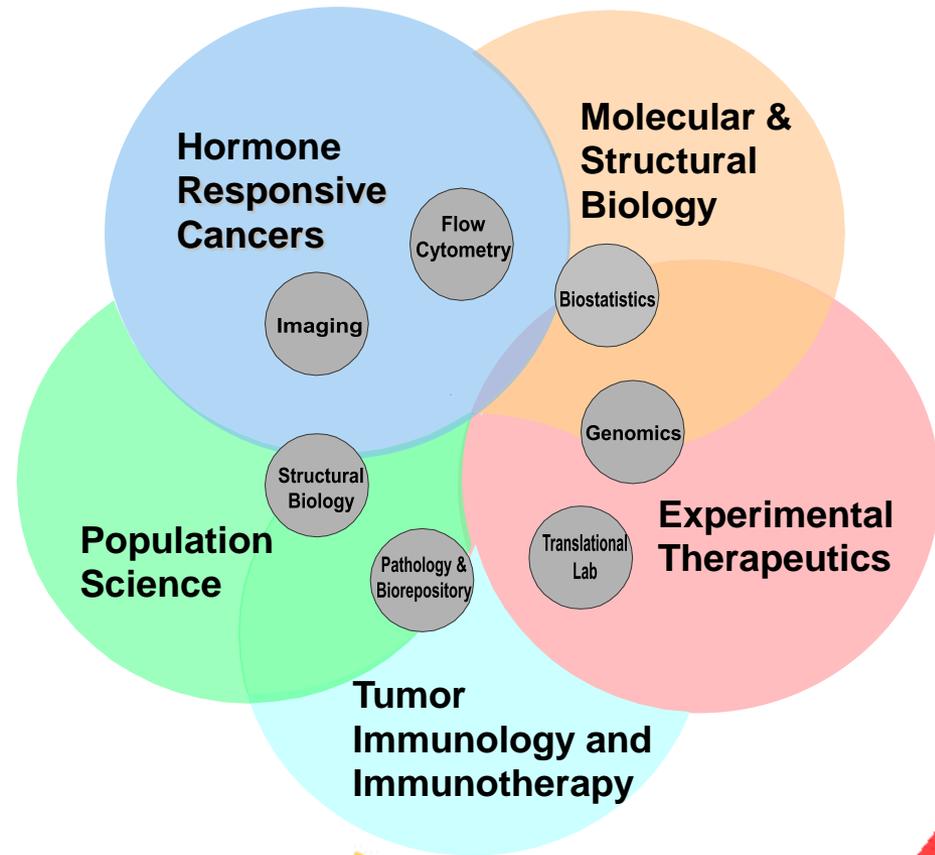
- 2600 New Cancer patients/year
- >60,000 Outpatient Visits, >2000 inpatient admissions
- 5 Research Programs, 7 core laboratories
- 257 faculty members (113 full, 141 assoc) including:
  - 4/11 USM Universities
  - 4/6 UMB Schools
  - 14/25 UMSOM Departments
- NCI Total Funding \$18.1M
- Total Cancer Research Funding \$56.7M
- **188 Clinical Trials (684pts total)**

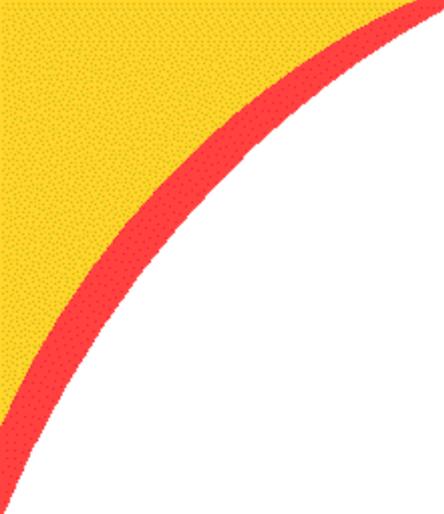
# Programs and Shared Services

## 2013



## 2015





**NCI Cancer Center Support Grant (P30)  
Renewal – *requests elevation to  
Comprehensive Cancer Center***

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# Research Highlights

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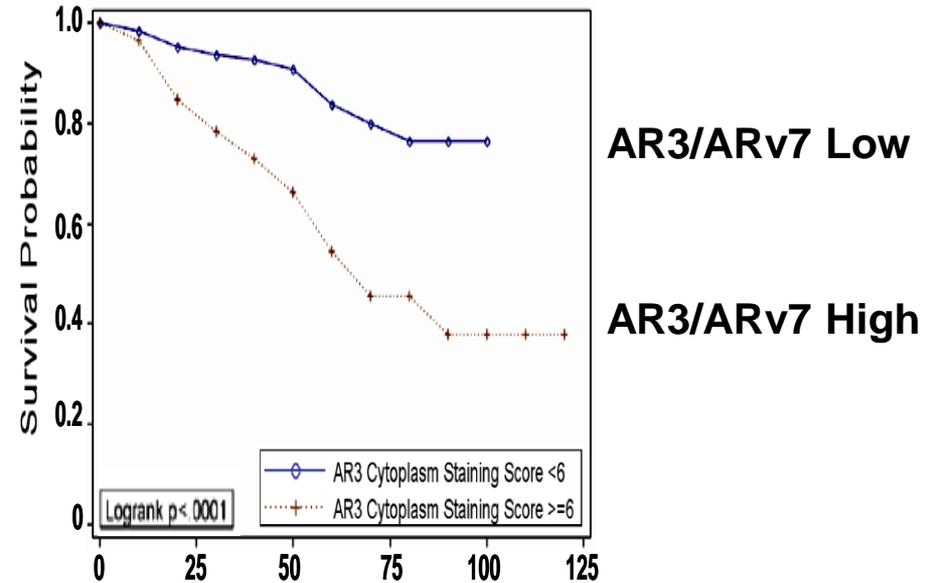
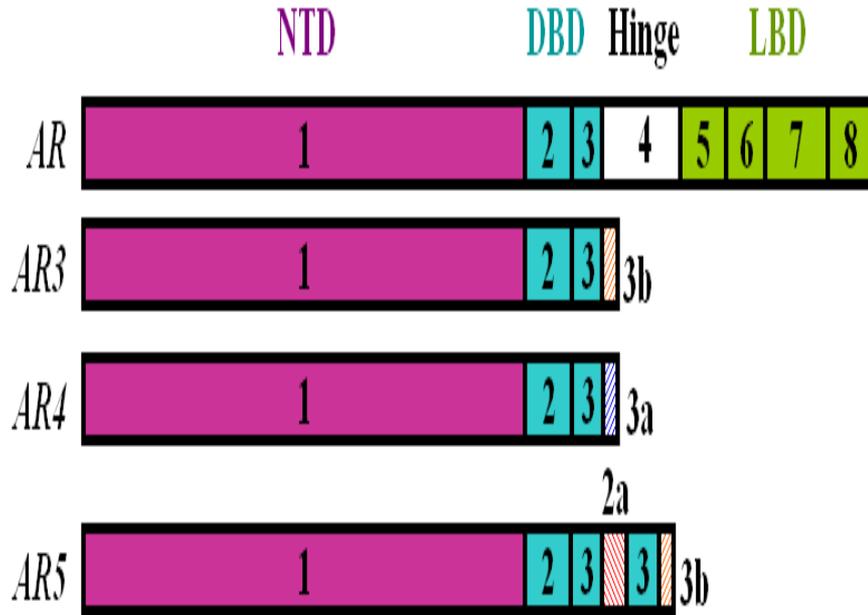
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# Scientific Accomplishments



- Drs. Vincent Njar and Angela Brodie invent galeterone for the treatment of advanced prostate cancer
- 6/24/15 ARMOR3-SV, Tokai's pivotal Phase 3 clinical trial of galeterone in men with metastatic castration-resistant prostate cancer (mCRPC) whose tumors express the AR-V7 splice variant, which is a truncated form of the androgen receptor (AR) that has been associated with non-responsiveness to commonly-used oral therapies for mCRPC.



**Collaborations:** NYU; NCI; UCLA; UC-Davis  
**Funding:** RO1 CA106504; RO1 CA169524  
**Reference:** J Biol Chem 286:36152-60, 2011  
 J Biol Chem 289:1529-39, 2014  
**Shared Services:** GSS, FCSS

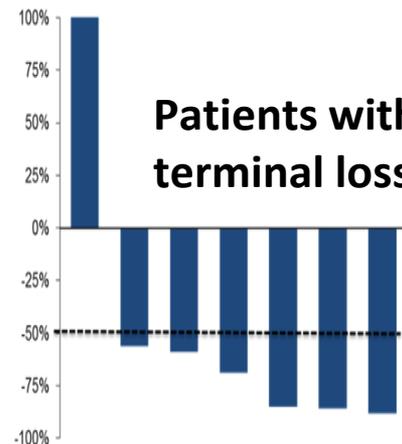
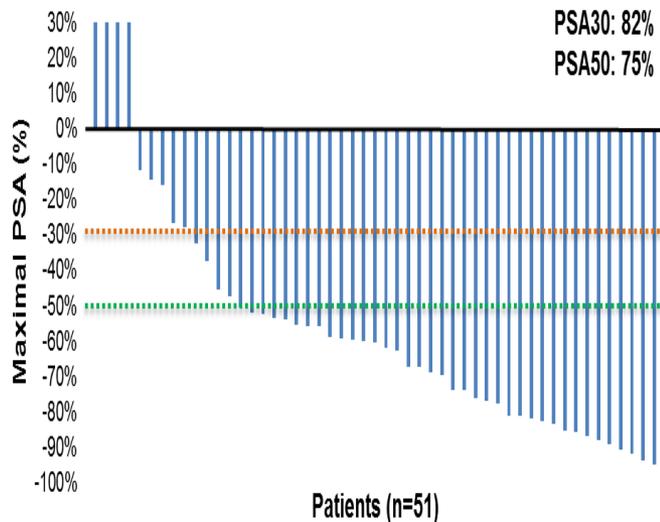
# Brodie, Njar - Galeterone inhibits AR and AR variants in treatment naïve and castration-resistant prostate cancer

Invented novel synthesis inhibitor galeterone that also downregulates AR:

VN124 -preclinical UMGCC

→ Tokai licensed  
Galeterone

→ Fast Track for CRPC  
Phase I, II, III

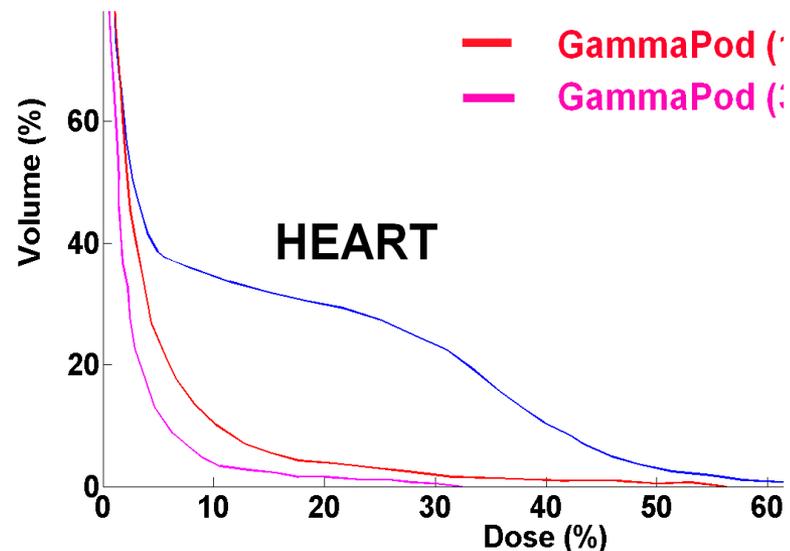
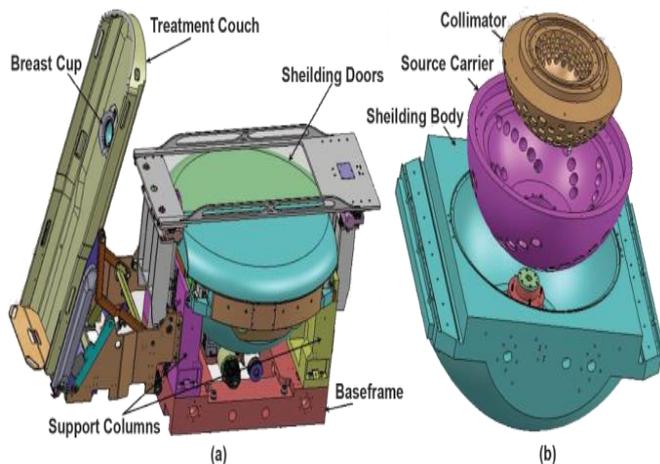


**ARMOR3-SV  
ARv7, mCRPC  
Precision Medicine**

**Funding:** RO1 CA129379, VA Merit, RO1 CA027440

**Reference:** Br J Cancer 103:1001-7, 2010; J Med Chem 58:2077-87, 2015

**Shared Services:** BSS, GSS



- Investigational device exemption from FDA; Clinical trial to begin late 2015 (UMGCC, UTSW, KU, Allegheny, Ottawa)
- Reduced radiation to heart, lungs
- Quality of Life-our catchment area; ablative therapy in 1 day versus 10-11 weeks

**Funding:** R44 CA132254

**Reference:** Med Phys 40:051703, 2013

# Recent Progress – Theme 3

AEOL 10150 for mitigation of lung radiation injury –  
Zeljko Vujaskovic, Isabel Lauren Jackson, Thomas MacVittie

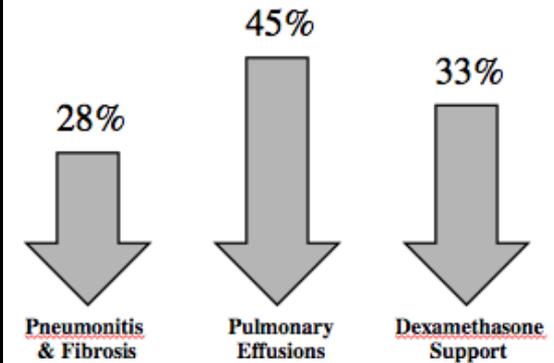
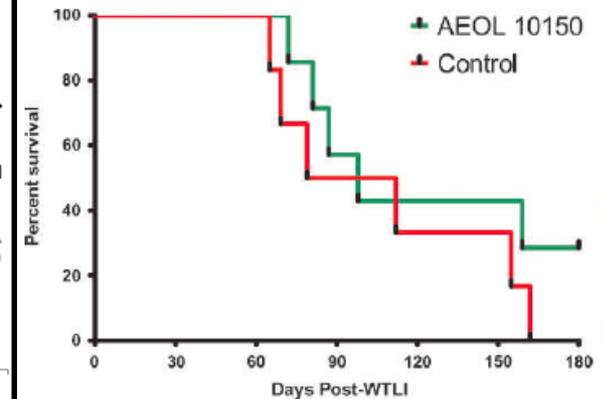
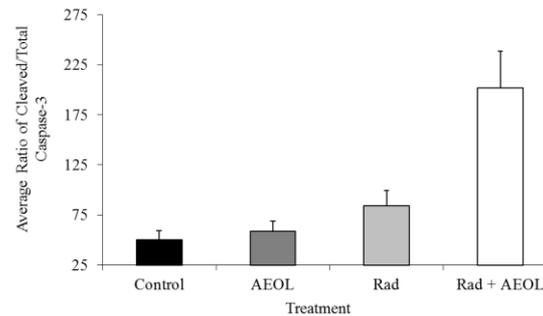
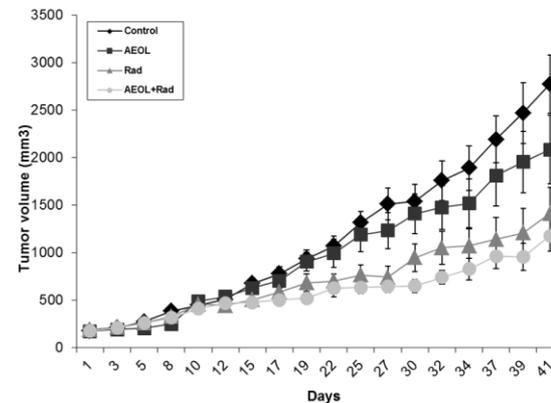
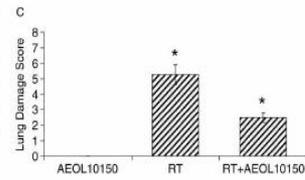
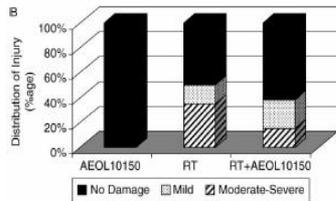
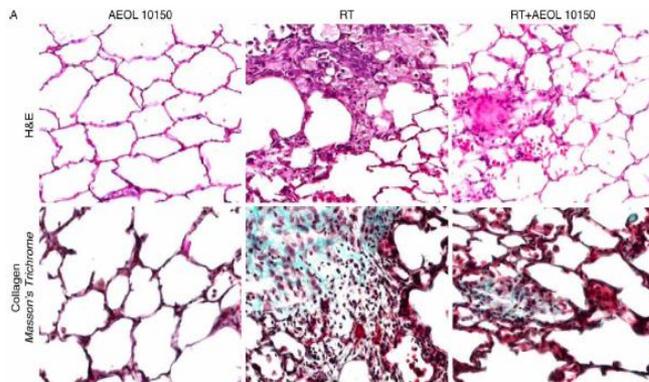
Preclinical drug development

Initiation of clinical trial in NSCLC patients (2015)

Mitigation of radiation-induced pneumonitis/  
fibrosis in clinically relevant rodent models

AEOL 10150 enhances  
NSCLC radiosensitivity

Reduces pneumonitis and steroid  
use in NHP exposed to WTLI



Hadley et al. *Int Con Rad Res* 2011  
Zhang et al. *Int J Rad Onc Biol Phys* 2012  
Jackson et al. *Free Rad Biol Med* 2012  
Garofalo et al. *Health Physics* 2014

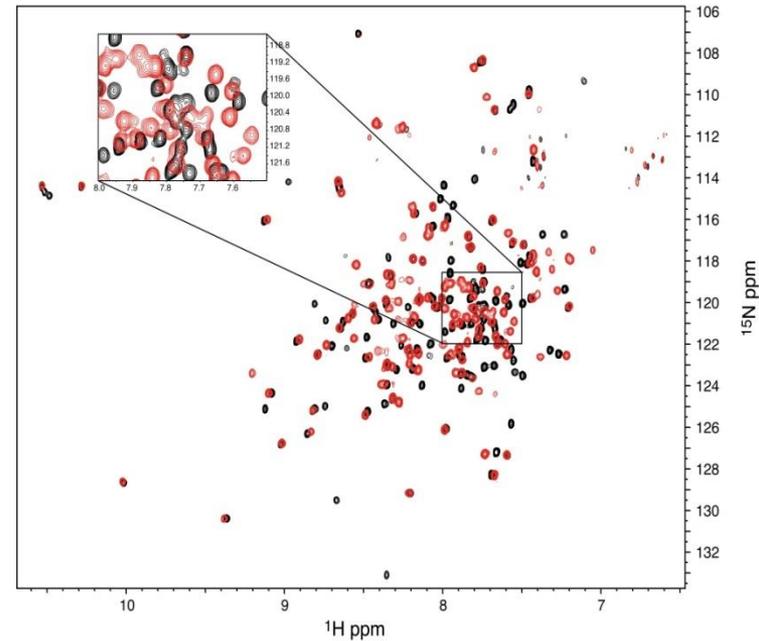
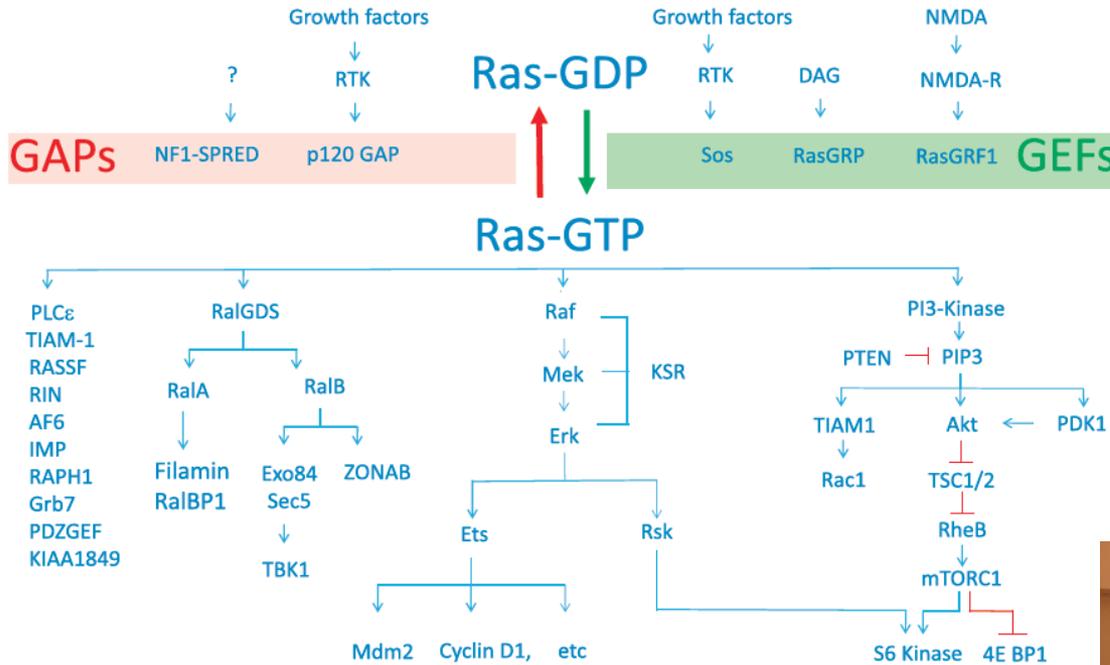
## Shared Services

- Flow Cytometry
- Biostatistics

# Theme 3 Signaling

## David Weber (MSB) & Frank McCormick (UCSF, FNL): "Targeting the KRAS4B oncogene and its complexes"

Funding: RAS initiative (CRADA: CBT, FNL, UCSF)



---- RAS  
---- RAS-CaM

Stephen et al, Cancer Cell (2014)

Nussinov et al, Mol Canc Res (2015); PI3Kalpha-CaM-KRAS

<http://www.cancer.gov/research/key-initiatives/ras/groups/structure-biophysics>

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# P50 PI, Dr. Pamela Clark speaking on e-cigarettes to NCI Director and National Cancer Advisory Board

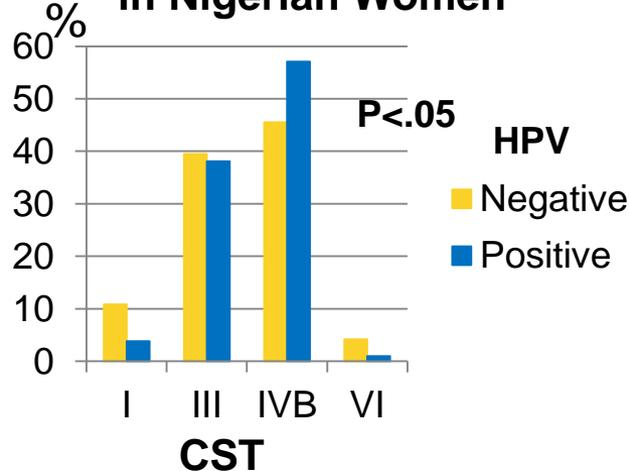


# Highlights - Epidemiology

## African Collaborative Center for Genomics and Microbiome Research

NHGRI U54 to Adebamowo at IHV-Nigeria

### Vaginal Microbiome & HPV Infection in Nigerian Women



Dareng, Epidemiol Infect 2015

#### Community State Types (CST)

I – *L. crispatus*

II – *L. gasseri*

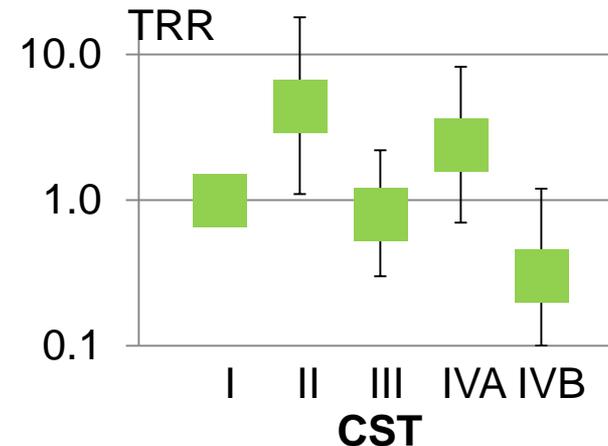
III – *L. iners*

IVA – Low *Lactobacillus*

IV-B – Low *Lactobacillus*

VI - Proteobacteria

### Vaginal Microbiome & HPV Clearance Rate In Baltimore Women



Brotman, J Infect Dis 2014

### Additional Microbiome Research

- Anal microbiome and HPV prevalence (PI: Nowak)
- Gut microbiome and estrogen metabolism (PI: Ravel)
- Gut microbiome and breast cancer risk (PI: Ravel)
- Oral microbiome and smoking (PI: Sapkota)

# Leveraging NCI status to serve our community – the UMB CURE Scholars Program

- \$750K supplement to NCI center grant funded by the NCI center to reduce health disparities
- Matches 43 west Baltimore middle school students with a team of mentors for 3x/week tutoring and mentoring in science and math – will continue through high school
- First NCI funded program in the US aimed at middle school students
- Will make scholars more competitive for undergraduate and graduate training in science and research

# UMB CURE Scholars Program – White Coat Ceremony – Oct 10, 2015



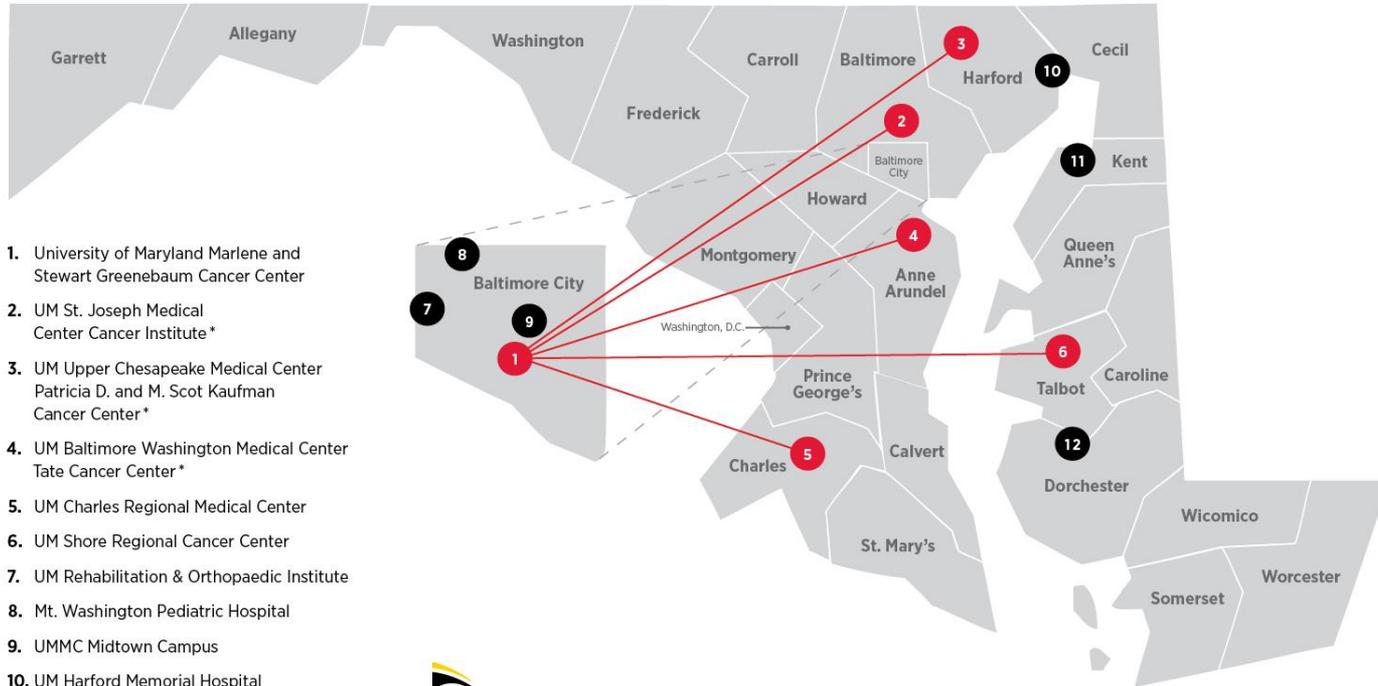
# University of Maryland Cancer Network

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# University of Maryland Cancer Network



1. University of Maryland Marlene and Stewart Greenebaum Cancer Center
2. UM St. Joseph Medical Center Cancer Institute\*
3. UM Upper Chesapeake Medical Center Patricia D. and M. Scot Kaufman Cancer Center\*
4. UM Baltimore Washington Medical Center Tate Cancer Center\*
5. UM Charles Regional Medical Center
6. UM Shore Regional Cancer Center
7. UM Rehabilitation & Orthopaedic Institute
8. Mt. Washington Pediatric Hospital
9. UMMC Midtown Campus
10. UM Harford Memorial Hospital
11. UM Shore Medical Center at Chestertown
12. UM Shore Medical Center at Dorchester



\*Formal affiliates of University of Maryland Marlene and Stewart Greenebaum Cancer Center.

● Cancer Treatment Center    ● Other UMMS Facilities



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# Cancer Program Size (New Patients) by Tumor Registry Count

New Cancer Patients*		
	CY 2013	CY 2014
UMGCC	2,590	2,645
UM BWMC	1,092	1,237
UM UCH	1,020	1,195
UM SJMC	1,087	1,080
UM SRH	1,192	991
UM CRMC	205	176
<b>TOTAL</b>	<b>7,186</b>	<b>7,324</b>

1/3 of newly diagnosed cancer patients in Maryland are treated at a UMMS hospital

\* 24,000 New Cancer Cases in Maryland Annually (Includes analytic and non analytic cases)

# Gov. Hogan leaves the hospital after completing chemotherapy - Oct 13, 2015



# Strategic Plan – the next 5 years

- Expand innovative basic and clinical research with CRF support
- Develop the University of Maryland Cancer Network to provide optimal, cost effective cancer care across the state
- Continue our mission of outreach to underserved populations throughout Maryland
- Continue our mission of training from middle school students all the way to clinical subspecialists
- Plan and launch a new home for the UMGCC